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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/640,850	08/13/2003	Yasunori Ito	MURTP083D1	9131

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EXAMINER	
WILKINS III, HARRY D	
ART UNIT	**PAPER NUMBER**
1742	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/640,850	ITO ET AL.	
	Examiner	Art Unit	
	Harry D. Wilkins, III	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/392,466.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Rejection Status

1. Applicant's remarks regarding the limitation that claim 13 requires that the material of the ceramic layer to be different from the material of the green sheets is found persuasive.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney (US 5,257,003) in view of Matsuo et al (US 4,324,702) and Atushi (US 4,988,648).

Mahoney teaches the invention substantially as claimed. Mahoney teaches (see abstract, figures, col. 1, line 22 to col. 2, line 32, col. 3, line 54 to col. 4, line 57 and col. 5, lines 52-57) a method of making a thermistor including stacking a specified number of ceramic green sheets of an insulating ceramic material, cutting the stacked ceramic green sheets to obtain individual thermistor elements, applying a resistive film material having a higher specified resistance than the ceramic green sheets entirely over the outer surface except the terminal end parts, baking the coated element, and depositing conductive terminal layers on the opposing end parts by a method including electrolytic plating.

Mahoney fails to teach that the ceramic green sheet compositions were selected to achieve a ceramic thermistor element having a specific resistance lower than 200 Ω·cm and comprising as principal component oxides containing two or more metals selected from the group consisting of Mn, Ni, Co, Fe, Cu and Al.

Matsuo et al teach (see abstract and col. 2, line 49 to col. 3, line 22 and col. 10, lines 32-34) that thermistors having desirable low resistance could be made from various compositions, including mixtures of Mn, Ni, Fe and Cu oxides.

Therefore, it would have been obvious to one of ordinary skill in the art to have made the ceramic green sheets of Mahoney from the ceramic composition disclosed by Matsuo et al because Matsuo et al teach that the disclosed compositions had excellent properties as thermistor elements including low specific resistance and high B-constant. Additionally, Matsuo et al show that the specific resistance of the thermistor was a known result effective variable based upon the composition of the thermistor element. Thus, it would have been within the ability of one of ordinary skill in the art to have selected an appropriate composition for achieving a desired specific resistance of the formed thermistor.

Mahoney teaches (see col. 3, line 54 to col. 4, line 57) that the resistive film (13) had to be a different material from the ceramic material of the ceramic green sheets, and that it was not critical what material was used, as long as it provided sufficient resistance to prevent the electrodes from interacting with the thermistor through any surface besides the terminal ends, thereby increasing uniformity of the thermistor

element. Thus, the resistive film had a specific higher resistance than the ceramic green sheets.

Atushi teach (see abstract and col.2, lines 24-63) a composite ceramic material with dispersed metal powders that was known to be useful in electronic devices because of its excellent heat resistance, corrosion resistance and mechanical properties while exhibiting excellent electrical characteristics. The composite material included ceramic material containing oxides of aluminum, nickel, cobalt and iron (ferrite), and metal powder containing metals such as iron (see "(4) Sintered Composite").

Therefore, it would have been within the ability of one of ordinary skill in the art to have selected the material of Atushi for the outer resistive film (13) because Atushi teaches that the material had improved corrosion resistance, thermal resistance and wear resistance, thereby increasing the lifetime of anything coated by the material.

Regarding claim 14, Matsuo et al teach (abstract and col. 2, line 49 to col. 3, line 22 and col. 10, lines 32-34) that the thermistor element be made of a material comprising oxides of Mn, Ni, Fe and Cu. Atushi teaches (see col. 2, lines 24-63) that the composite material be made from oxides of Fe, Al, Ni and Co. Thus, the two materials share the same principal components, namely oxides of Fe.

Response to Arguments

4. Applicant's arguments with respect to claims 13 and 14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry D Wilkins, III
Primary Examiner
Art Unit 1742

hdw